

## Preparing food to give it a new form

### PREPARATION TECHNIQUES

Certain preparation techniques transform food to make it edible. There also some preparation techniques which go further than that and give food a new form. The food is processed to change its texture, taste or even how easy it is to digest.

In this case, there are several kinds of preparation techniques. Mechanical techniques involve whisking, blending or even spreading out a paste.

**Mechanical techniques: whisking, blending, spreading out a paste**

Types of thermal techniques are for example heating, cooking or grilling.

**Thermal techniques: heating, cooking, frying or grilling**

There are also biochemical techniques using raising agents and lactobacilli.

**Biochemical techniques: raising agents, lactobacilli**

Here are some examples to illustrate these techniques.

### FROM FLOUR TO BREAD

Do you know how flour is made into bread? A first stage of preparation enables us to produce flour from grains of wheat.

**Mechanical technique: grinding, sieving**



Then we give flour a new form by first mixing it with water.

**Mixture: flour, water**

Then with yeast.

**Biochemical technique: adding yeast**

During fermentation, yeast consumes starch and emits gas bubbles, making the dough rise. Finally, the dough must be kneaded.

**Mechanical technique: kneading**

Then baked.

**Heating technique: cooking in an oven**

When baking, the Maillard reaction gives the crust of the bread colour and flavour.

**Maillard reaction = carbohydrates + proteins + heat**

The mixture of flour and water is also the basis for couscous, pasta and pancakes.

## FROM BARLEY TO BEER

Barley is the basis of beer. When a seed germinates, its starch is transformed into sugars, and it is precisely this process which is used for getting malt from grains of barley.

**Biochemical technique: malting**

Malt is then mixed with water and hops to flavour the liquid.

**Mix : malt, water, hops**

Finally, yeast causes fermentation, transforming sugars into alcohol and carbon dioxide, making beer fizzy.

**Biochemical technique: addition of yeast**

## FROM MILK TO CHEESE

A final example to understand how milk is the basis for cheese.

Milk is a rich foodstuff, but it is also highly perishable. There is a risk of contamination during milking, transportation or even storage. A well-known way of preserving milk is to make it coagulate and take away the excess liquid: This is the basic principle for making cheese. Early on, humans grasped how useful this process was and cheese took an important place in our nutrition.



The first stage involves curdling the milk.

**Biochemical technique: curdling with rennet**

The cheesemaker pours the milk into a cauldron and warms it.



Milk is coagulated by adding lactic bacteria and rennet, which is an enzyme extracted from a calf's stomach. The resultant curds have a soft, gelatinous texture.

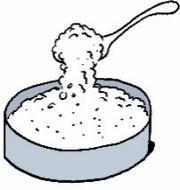
Transforming this into cheese requires a series of mechanical actions.

**Mechanical technique: cutting up, churning, seizing, pressing**

First of all, the milk is sliced, meaning that the curds are cut up using a wire frame and then reheated once more. Then there is the churning of the milk, when the cheesemaker controls the size and regularity of the grains of curd while continuing to stir the mixture.

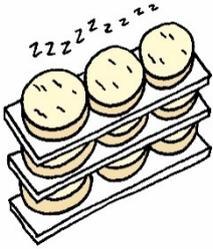


Collecting the curd means that the mass of curds is brought together using a large coarse canvas cloth. The whey, known as lactoserum, runs through this.



The mass of curds is put into a mould before going on to be pressed. The cheese is then pressed to remove any excess water. The last stage is fermentation.

**Biochemical technique: fermentation**



The cheese is turned regularly for twenty or so hours while being pressed. It is then taken out of its mould, salted and stored in a cellar where fermentation continues as the cheese matures.